IN THE CLAIMS:

The following is a complete listing of the claims in this application, reflects all changes currently being made to the claims, and replaces all earlier versions and all earlier listings of the claims:

1. (Currently Amended) A process for forming a silicon-based thin film containing crystalline phase by high-frequency plasma chemical vapor deposition, comprising [[the]] a step[[s]] of providing a material gas containing silicon fluoride and hydrogen, ~~and adding~~ further oxygen [[to]] atoms being incorporated in the material gas[[,]] ~~whereby oxygen atoms are contained in the material gas~~ in a concentration of from 0.1 ppm to 0.5 ppm based on that ~~a concentration~~ of silicon atom[[s]] wherein the step of providing the material gas is performed so that hydrogen in the material gas is fed at a flow rate not lower than the flow rate of the silicon fluoride.

2. (Canceled)

3. (Previously Presented) The process according to Claim 1, wherein the silicon-based thin film is formed at a pressure of 50 mTorr or higher.

4. (Currently Amended) A silicon-based thin film containing crystalline phase formed by high-frequency plasma chemical vapor deposition, the silicon-based thin film having been formed under conditions that silicon fluoride and hydrogen are provided in a material gas, and oxygen is added to the material gas so that oxygen atoms

are incorporated in the material gas in a concentration of from 0.1 ppm to 0.5 ppm based on that of a concentration of silicon atom[[s]].

5. (Previously Presented) The silicon-based thin film according to Claim 4, which contains the oxygen atoms in an amount of from 1.5×10^{18} atoms/cm^3 to 5.0×10^{19} atoms/cm^3.

6. (Previously Presented) The silicon-based thin film according to Claim 4, wherein the hydrogen in the material gas has been fed at a flow rate not lower than a flow rate of the silicon fluoride.

7. (Previously Presented) The silicon-based thin film according to Claim 4, wherein the silicon-based thin film has been formed at a pressure of 50 mTorr or higher.

8. (Previously Presented) The silicon-based thin film according to Claim 4, wherein the silicon-type thin film has a Raman scattering intensity due to a crystalline component, which intensity is at least three times the Raman scattering intensity due to amorphous component.

9. (Previously Presented) The silicon-based thin film according to Claim 4, wherein the silicon-based thin film has a diffraction intensity of the (220)-plane,

as measured by X-ray or electron-ray diffraction, which is in a proportion of 50% or more with respect to the total diffraction intensity.

10. (Currently Amended) A photovoltaic device comprising a substrate, and a semiconductor layer disposed on said substrate and having at least one set of p-I-n junction, wherein at least one I-type semiconductor layer has been formed by a process for forming a silicon-based thin film by high-frequency plasma chemical vapor deposition, the I-type semiconductor layer having been formed under conditions that silicon fluoride and hydrogen are contained in a material gas and oxygen is added to the material gas so that oxygen atoms are incorporated in the material gas in a concentration of from 0.1 ppm to 0.5 ppm based on that of a concentration of silicon atom[[s]].

11. (Original) The photovoltaic device according to Claim 10, wherein the I-type semiconductor layer contains the oxygen atoms in an amount of from 1.5×10^{18} atoms/cm^3 to 5.0×10^{19} atoms/cm^3.

12. (Previously Presented) The photovoltaic device according to Claim 10, wherein the hydrogen in the material gas has been fed at a flow rate not lower than a flow rate of the silicon fluoride.

13. (Original) The photovoltaic device according to Claim 10, wherein the I-type semiconductor layer has been formed at a pressure of 50 mTorr or higher.

14. (Original) The photovoltaic device according to Claim 10, wherein the I-type semiconductor layer has a Raman scattering intensity due to crystalline component which intensity is at least three times the Raman scattering intensity due to amorphous component.

15. (Original) The photovoltaic device according to Claim 10, wherein the I-type semiconductor layer has a diffraction intensity of the (220)-plane as measured by X-ray or electron-ray diffraction, which is in a proportion of 50% or more with respect to the total diffraction intensity.

16. - 21. (Canceled)